AtliQ Motors

Strategic Insights for Launching Electric Vehicles in India

Comprehensive Analysis and Recommendations for AtliQ Motors

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WHY?

Explaining the Purpose of This Project:

The goal of this project is to facilitate the strategic market expansion of AtliQ Motors in the Indian electric vehicle (EV) segment. By conducting a comprehensive market analysis, we aim to provide actionable insights that will help AtliQ Motors increase its market share, optimize its product offerings, and establish a strong presence in a rapidly growing market. Here's why this project is critical:

- **Market Potential:**
- India's automotive market, especially the EV segment, is growing rapidly with a substantial year-over-year increase in sales.
- With rising environmental concerns and government incentives, the demand for electric vehicles is expected to surge.
- **Current Market Share:**
- AtliQ Motors currently holds less than 2% of the market share in India, indicating significant room for growth and market penetration.
- **Competitive Edge:**
- By leveraging detailed market insights, AtliQ Motors can strategically launch its bestselling models, positioning itself as a key player in the Indian EV market.
- Understanding consumer preferences and regional demands will enable the company to tailor its offerings, enhance customer satisfaction, and build brand loyalty.
- **Government Incentives:**
- The Indian government is actively promoting the adoption of electric vehicles through various incentives and subsidies.
- Capitalizing on these incentives will reduce costs and accelerate market entry for AtliQ Motors.
- **Environmental Responsibility:**
- Contributing to the reduction of carbon emissions aligns with global sustainability goals and enhances the company's reputation as an environmentally responsible brand.
- **Infrastructure Development:**
- Identifying high-potential regions for setting up manufacturing units and expanding charging infrastructure will support long-term growth and operational efficiency.
- **First-Mover Advantage:**
- Entering the market early and establishing a strong presence will provide a competitive advantage over new entrants and existing competitors.

WHAT?

Understanding AtliQ Motors and Its Market Context:

Company Overview:

- **AtliQ Motors** is a renowned automotive giant headquartered in the USA, known for its innovation and high-quality vehicle manufacturing.
- Specializes in the development and production of electric vehicles (EVs), hybrid vehicles, and cutting-edge automotive technologies.

Current Market Position:

- AtliQ Motors has a strong presence in the global automotive market but currently holds less than 2% market share in India.
- The company is recognized for its reliability, performance, and customer-centric approach, making it a trusted brand among consumers.

Product Portfolio:

- Offers a range of electric vehicles, including compact cars, sedans, SUVs, and commercial vehicles.
- Known for integrating advanced features such as autonomous driving capabilities, smart connectivity, and eco-friendly technology.

Market Potential in India:

- India is experiencing rapid urbanization and increased environmental awareness, driving the demand for sustainable transportation solutions.
- The Indian government is actively supporting the adoption of EVs through subsidies, tax incentives, and the development of charging infrastructure.

Consumer Demographics:

- Growing middle class with increasing disposable income and a preference for eco-friendly, cost-effective transportation.
- Younger population showing a strong inclination towards innovative and sustainable automotive solutions.

Competitive Landscape:

- The Indian EV market is currently dominated by a few key players, including Tata Motors, Mahindra Electric, and Hyundai.
- Despite the competition, there is significant opportunity for new entrants to capture market share by offering differentiated products and services.

Strategic Objectives:

- Expand AtliQ Motors' market share in India by leveraging detailed market insights and consumer preferences.
- Launch bestselling models tailored to the Indian market to meet the specific needs and demands of local consumers.
- Establish manufacturing units and enhance the charging infrastructure to support long-term growth and operational efficiency.

Future Vision:

- Position AtliQ Motors as a leading EV manufacturer in India by focusing on innovation, sustainability, and customer satisfaction.
- Contribute to India’s goal of reducing carbon emissions and promoting sustainable transportation solutions.

HOW?

Our Approach to Solving the Problem Statement:

1. Data Collection and Integration:

- Gathered data from:
  - **dim_date.csv:** Date information
  - **electric_vehicle_sales_by_state.csv:** EV sales by state
  - **electric_vehicle_sales_by_makers.csv:** Sales by manufacturers
- Cleaned and standardized data using Python (pandas).

2. Data Analysis:

- **Sales Performance:** Analyzed EV sales trends across states and manufacturers.
- **Growth Rate:** Calculated year-over-year sales growth.
- **Market Share:** Assessed market share distribution among manufacturers and states.

3. Visualization:

- Created Tableau dashboards to present:
  - **Overview:** Total EV sales, growth rate, market share.
  - **Sales by State:** Top-performing states with visual comparisons.
  - **Sales by Maker:** Manufacturer performance using bar and pie charts.
  - **Strategic Recommendations:** Actionable insights with supporting visuals.

4. Strategic Recommendations:

- Focus on high-sales regions (Maharashtra, Karnataka, Tamil Nadu).
- Leverage government incentives.
- Expand charging infrastructure.
- Optimize product line for affordability and differentiation.
- Strengthen dealership network and customer engagement.

5. Reporting:

- Developed a clear and concise PowerPoint presentation.

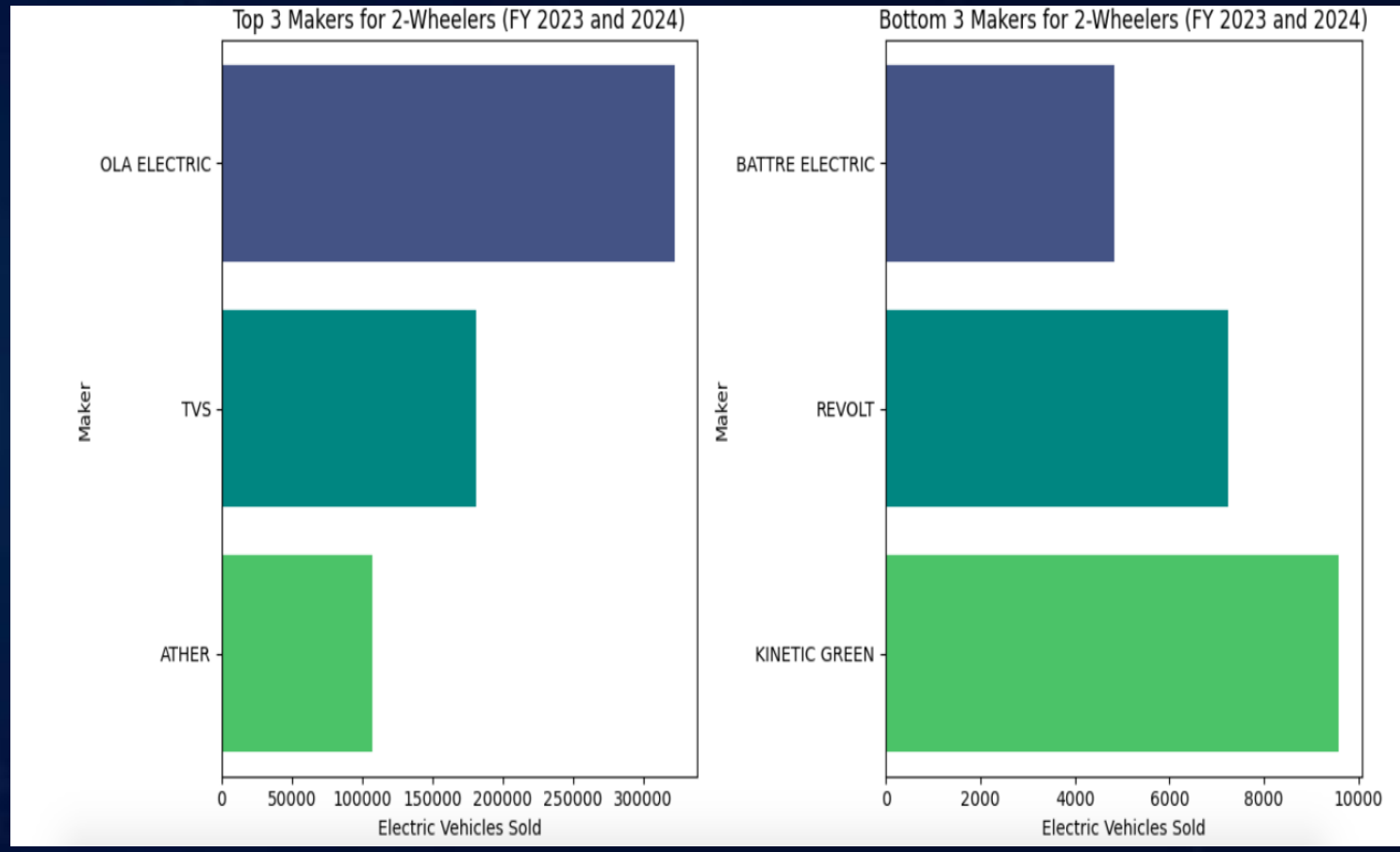
1. List the top 3 and bottom 3 makers for the fiscal years 2023 and 2024 interms of the number of 2-wheelers sold

Top 3 Makers for 2-Wheelers in FY 2023 and 2024:

	maker	electric_vehicles_sold
9	OLA ELECTRIC	322489
12	TVS	180743
1	ATHER	107552

Bottom 3 Makers for 2-Wheelers in FY 2023 and 2024:

	maker	electric_vehicles_sold
3	BATTRE ELECTRIC	4841
11	REVOLT	7254
6	KINETIC GREEN	9585



2. Identify the top 5 states with the highest penetration rate in 2-wheeler and 4-wheeler EV sales in FY 2024.

Top 5 States with Highest Penetration Rate in 2-Wheeler EV Sales (FY 2024):

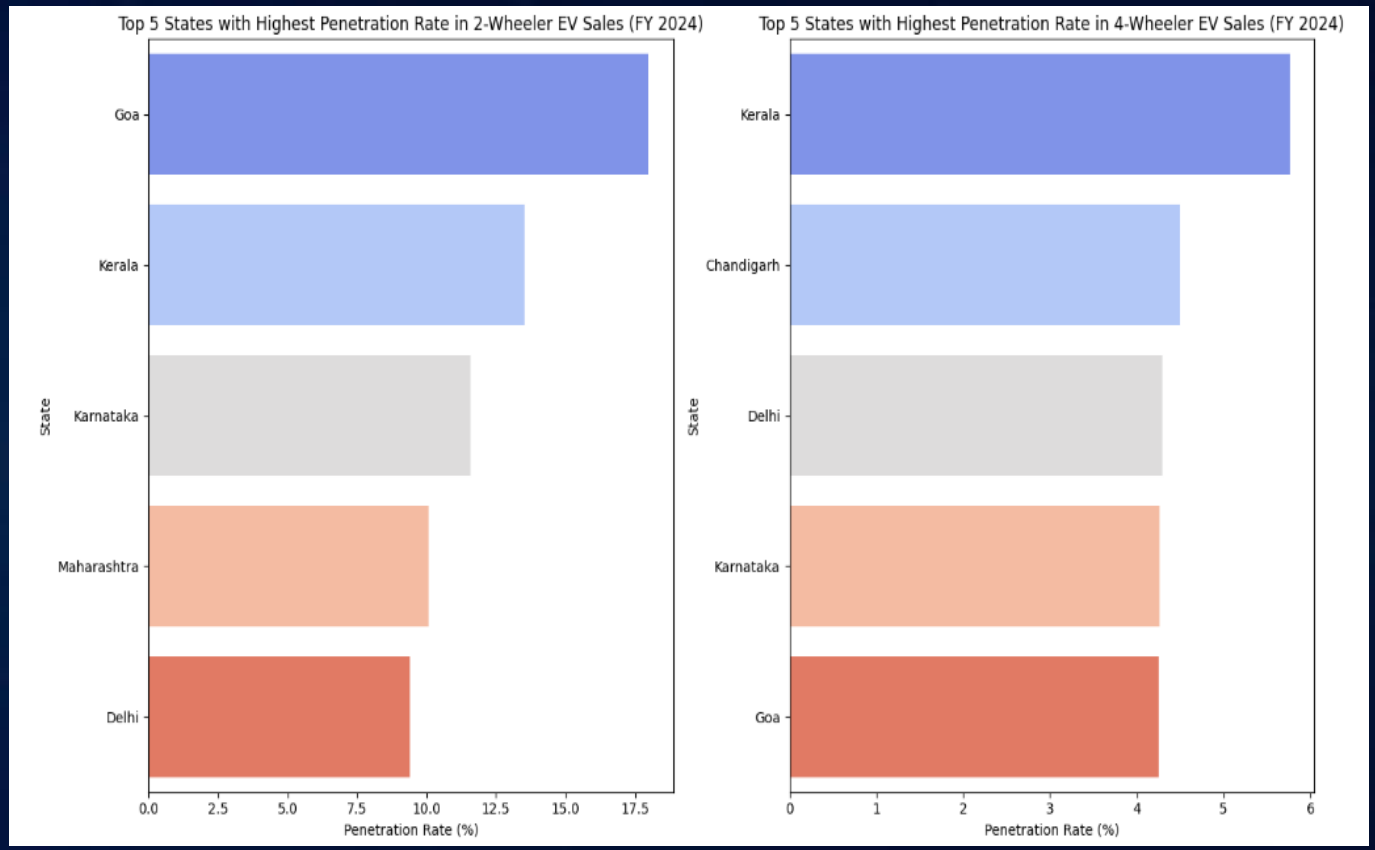
	state	electric_vehicles_sold	total_vehicles_sold
10	Goa	9768	54290
17	Kerala	64769	478887
16	Karnataka	148111	1279767
20	Maharashtra	183052	1817343
9	Delhi	38094	405218

	penetration_rate_2W
10	17.992264
17	13.524903
16	11.573279
20	10.072507
9	9.400866

Top 5 States with Highest Penetration Rate in 4-Wheeler EV Sales (FY 2024):

	state	electric_vehicles_sold	total_vehicles_sold
17	Kerala	9169	159227
6	Chandigarh	1020	22651
9	Delhi	8630	201130
16	Karnataka	12878	302221
10	Goa	1031	24234

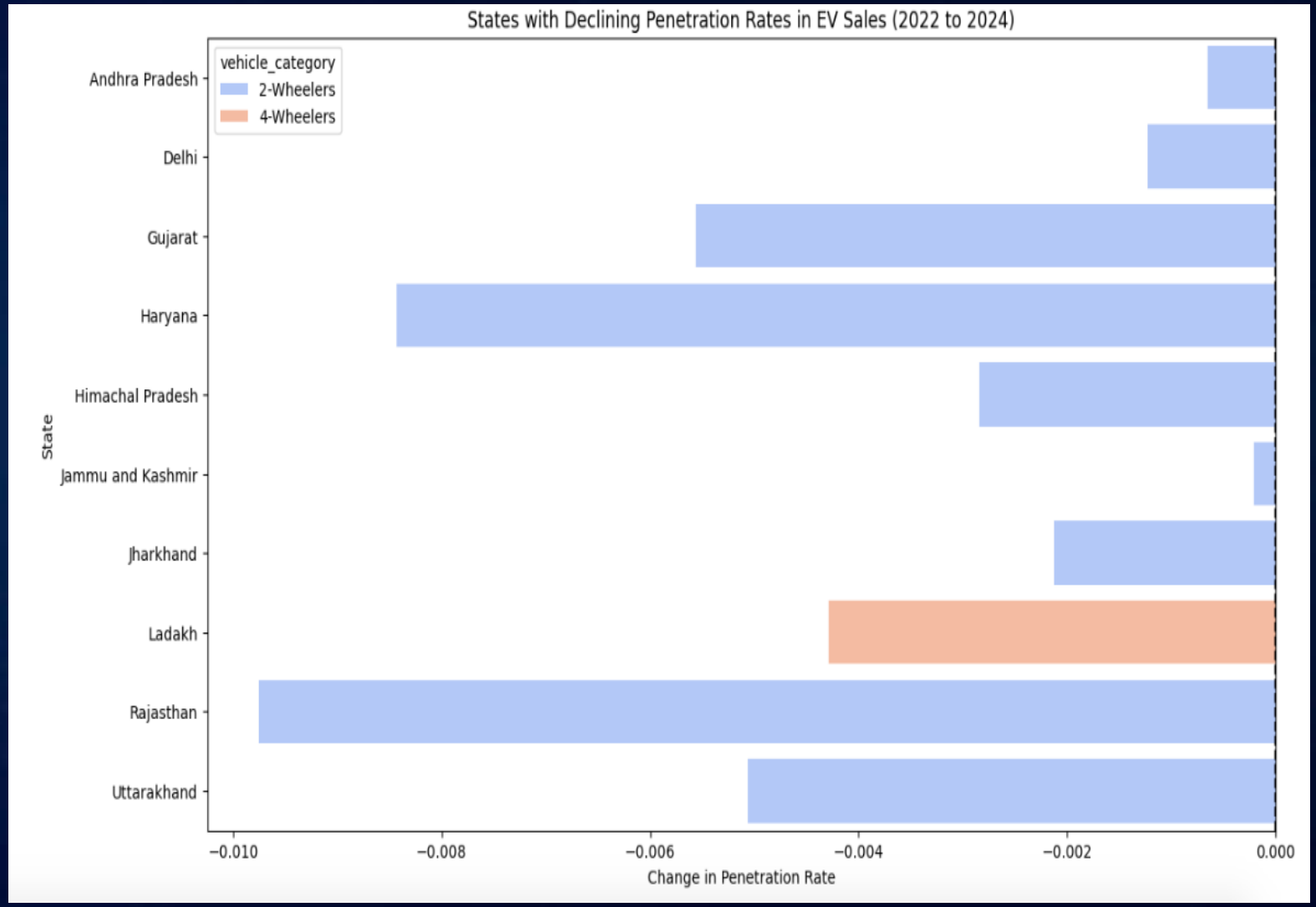
	penetration_rate_4W
17	5.758445
6	4.503112
9	4.290757
16	4.261120
10	4.254353



3. List the states with negative penetration (decline) in EV sales from 2022 to 2024?

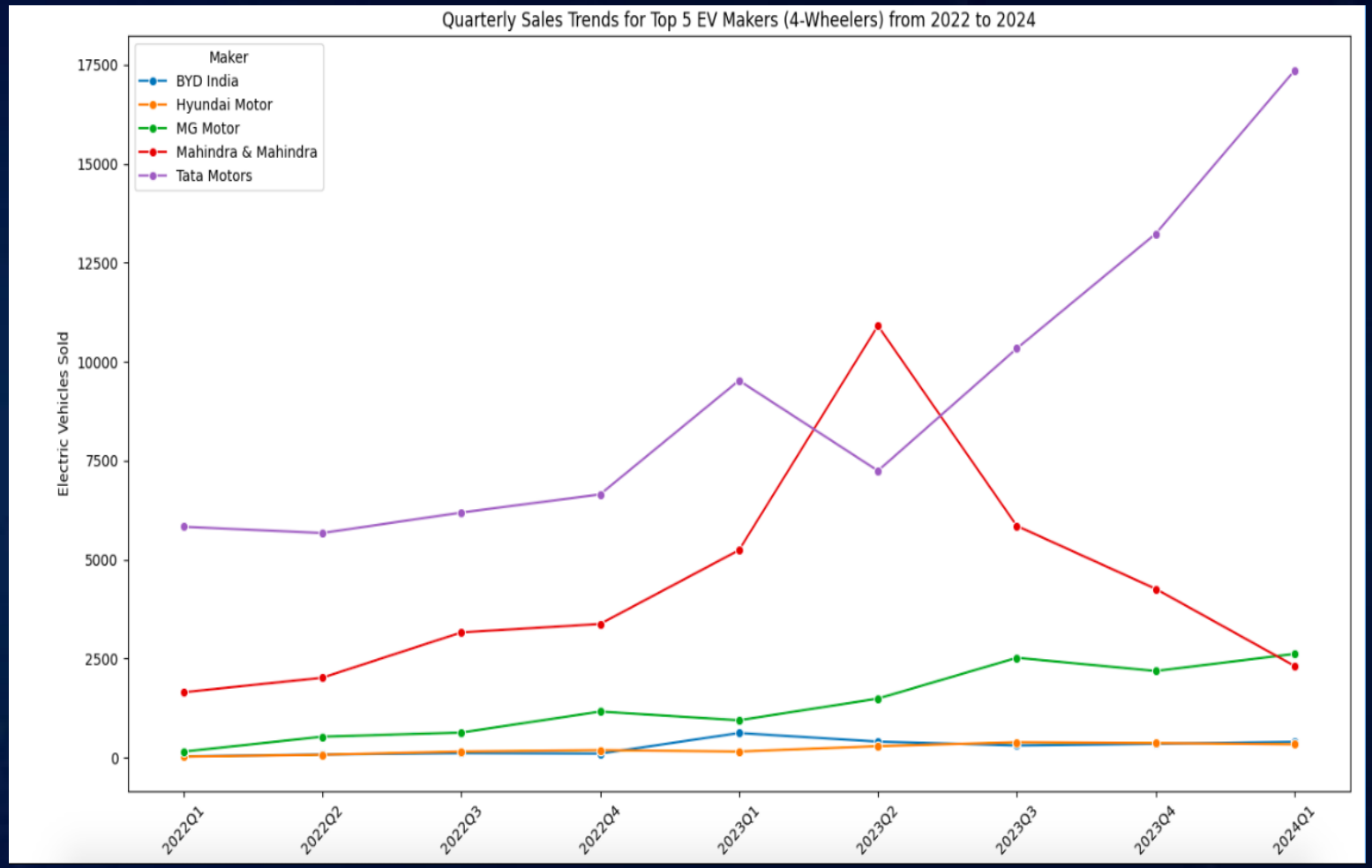
States with Declining Penetration Rates (2022 to 2024):

	state	vehicle_category	penetration_rate_2022	penetration_rate_2024	penetration_rate_change
2	Andhra Pradesh	2-Wheelers	0.045827	0.045170	-0.000656
16	Delhi	2 -Wheelers	0.095236	0.094009	-0.001228
20	Gujarat	2-Wheelers	0.067928	0.062368	-0.005559
22	Haryana	2-Wheelers	0.027948	0.019517	-0.008431
24	Himachal Pradesh	2-Wheelers	0.015895	0.013056	-0.002839
26	Jammu and Kashmir	2-Wheelers	0.025319	0.025112	-0.000207
28	Jharkhand	2-Wheelers	0.018927	0.016802	-0.002125
35	Ladakh	4-Wheelers	0.004288	0.000000	-0.004288
54	Rajasthan	2-Wheelers	0.065758	0.056002	-0.009756
64	Uttarakhand	2-Wheelers	0.038061	0.032998	-0.005063



4. What are the quarterly trends based on sales volume for the top 5 EV makers (4-wheelers) from 2022 to 2024?

	maker	quarter	electric_vehicles_sold
0	BYD India	2022Q1	32
1	BYD India	2022Q2	81
2	BYD India	2022Q3	113
3	BYD India	2022Q4	103
4	BYD India	2023Q1	623



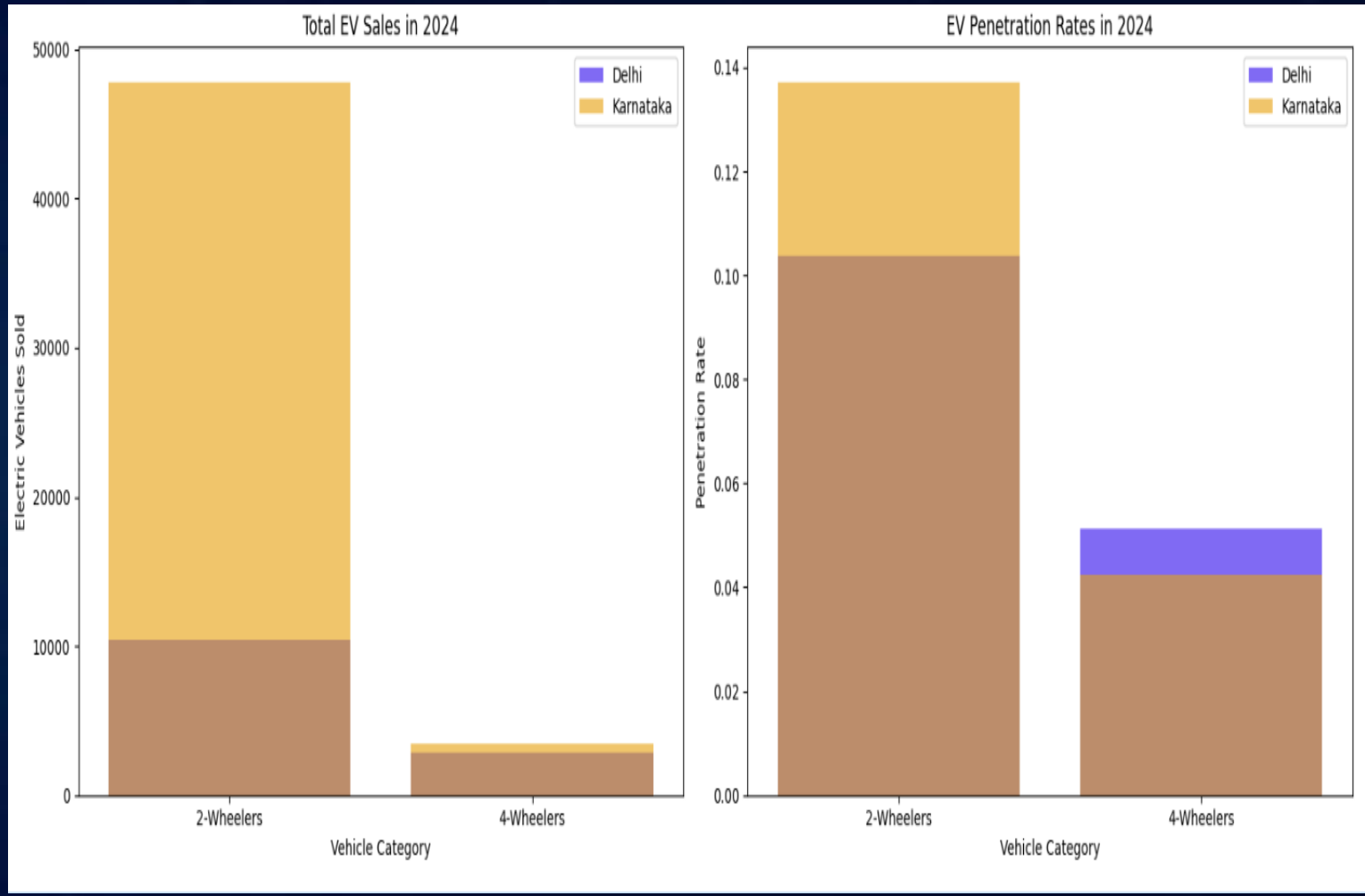
5. How do the EV sales and penetration rates in Delhi compare to Karnataka for 2024?

Comparison Data for Delhi (2024):

	vehicle_category	electric_vehicles_sold	penetration_rate
0	2-Wheelers	10439	0.103854
1	4-Wheelers	2838	0.051299

Comparison Data for Karnataka (2024):

	vehicle_category	electric_vehicles_sold	penetration_rate
0	2-Wheelers	47762	0.137022
1	4-Wheelers	3485	0.042328

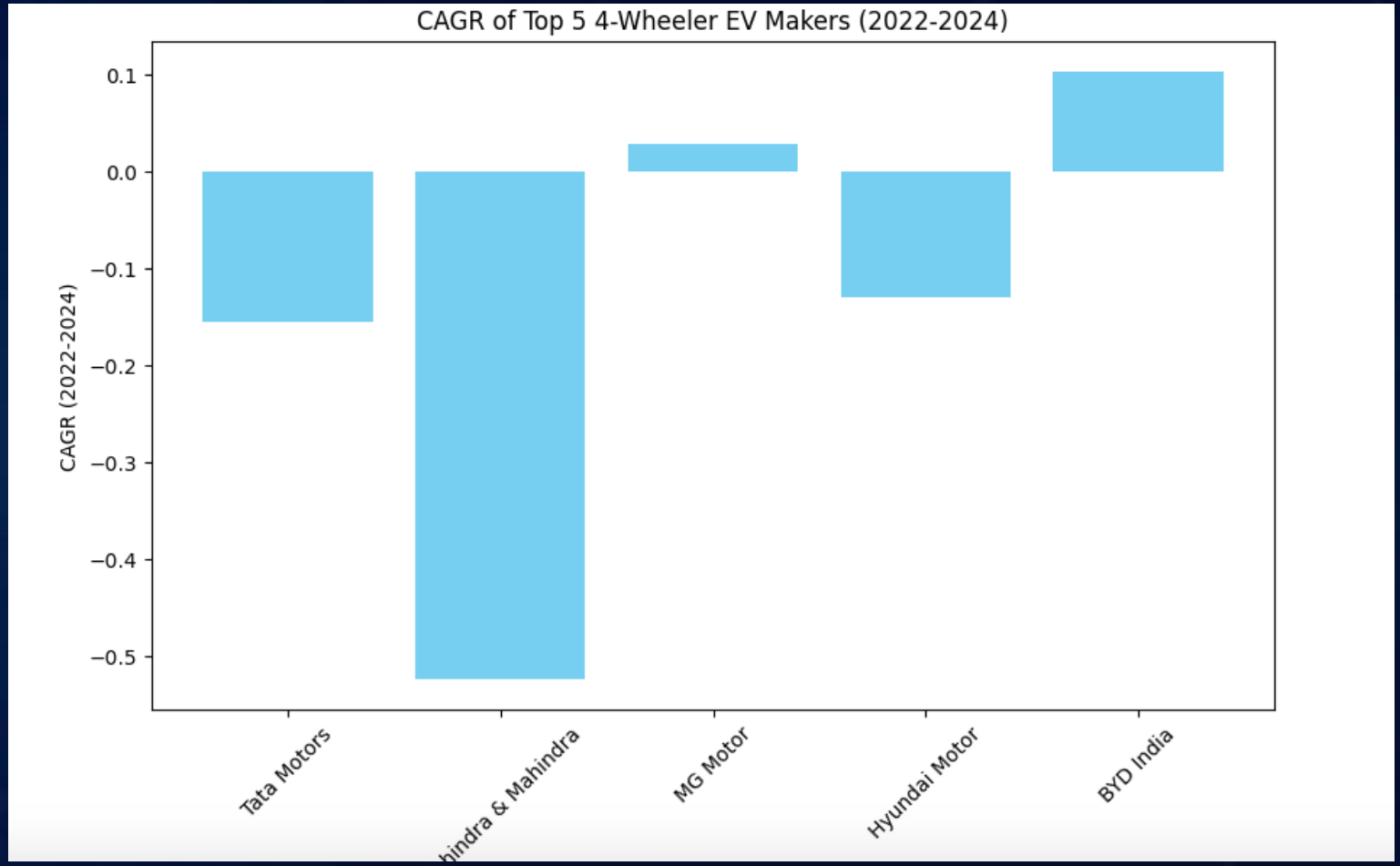


6. List down the compounded annual growth rate (CAGR) in 4-wheeler units for the top 5 makers from 2022 to 2024.

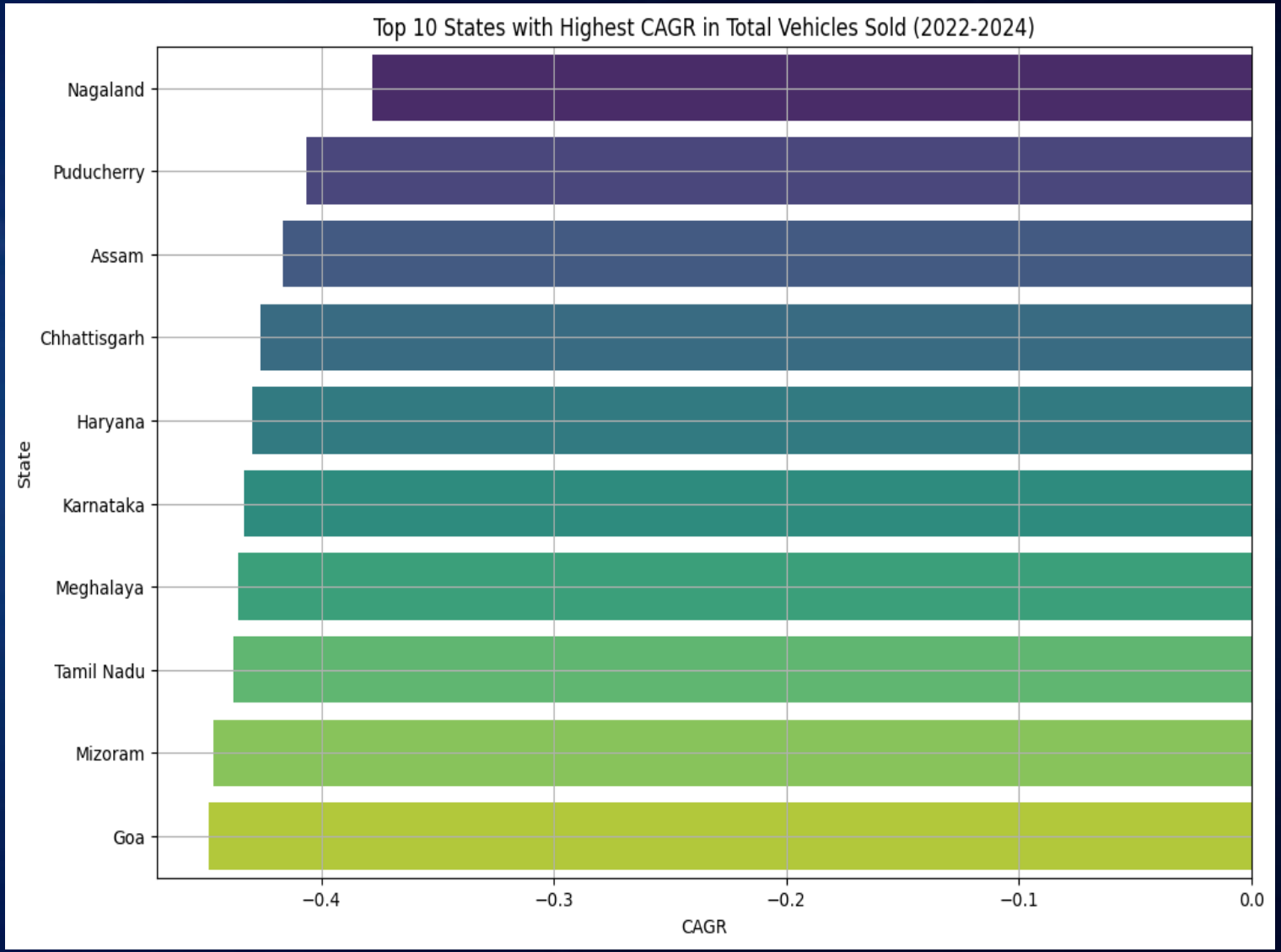
CAGR for Top 5 4-Wheeler Makers (2022-2024):

	maker	electric_vehicles_sold_2022
8	Tata Motors	24352
5	Mahindra & Mahindra	10215
4	MG Motor	2484
2	Hyundai Motor	447
1	BYD India	329

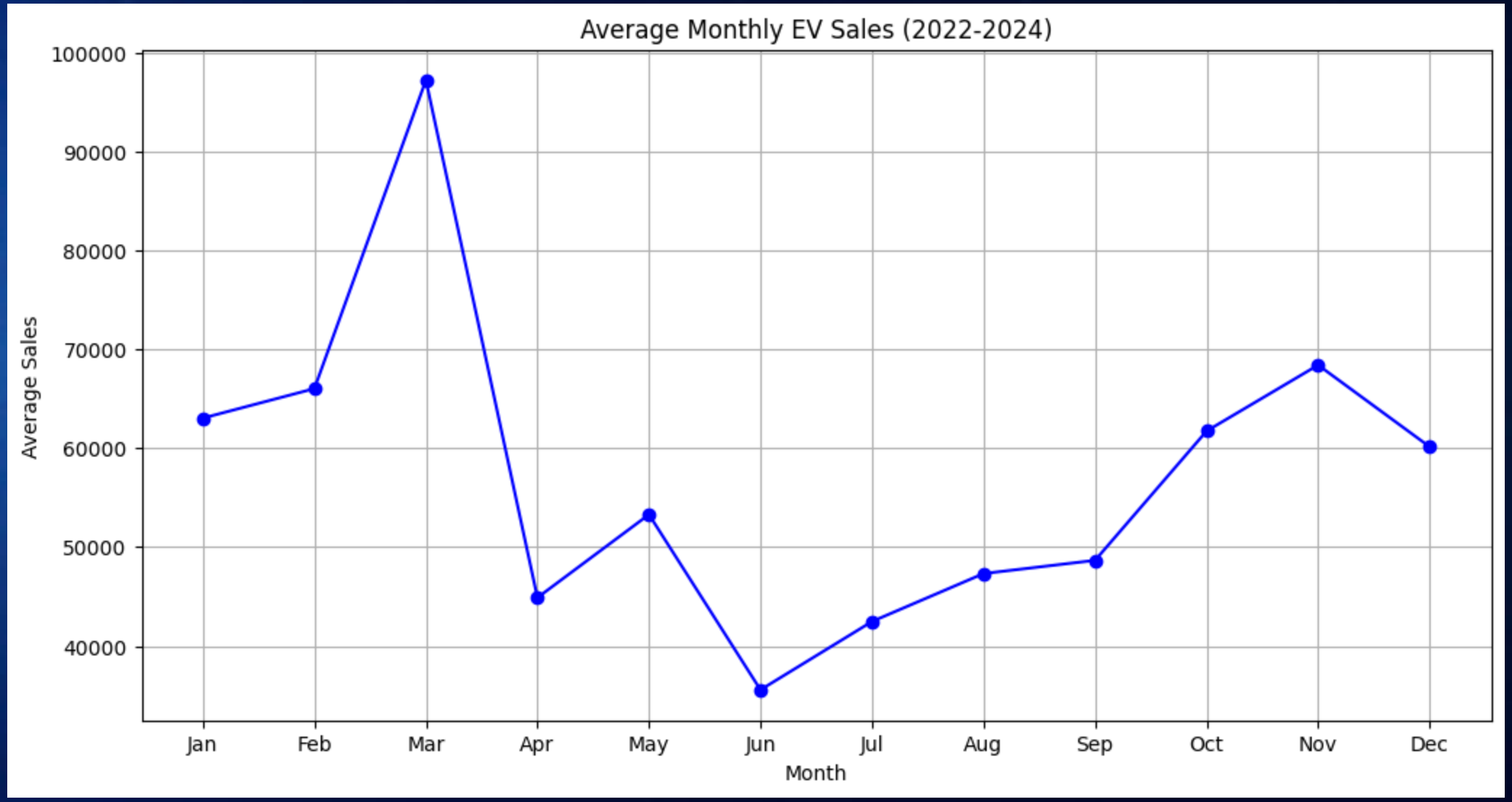
	electric_vehicles_sold_2024	CAGR
8	17361	-0.155655
5	2316	-0.523843
4	2622	0.027402
2	338	-0.130430
1	400	0.102636



7. List down the top 10 states that had the highest compounded annual growth rate (CAGR) from 2022 to 2024 in total vehicles sold.



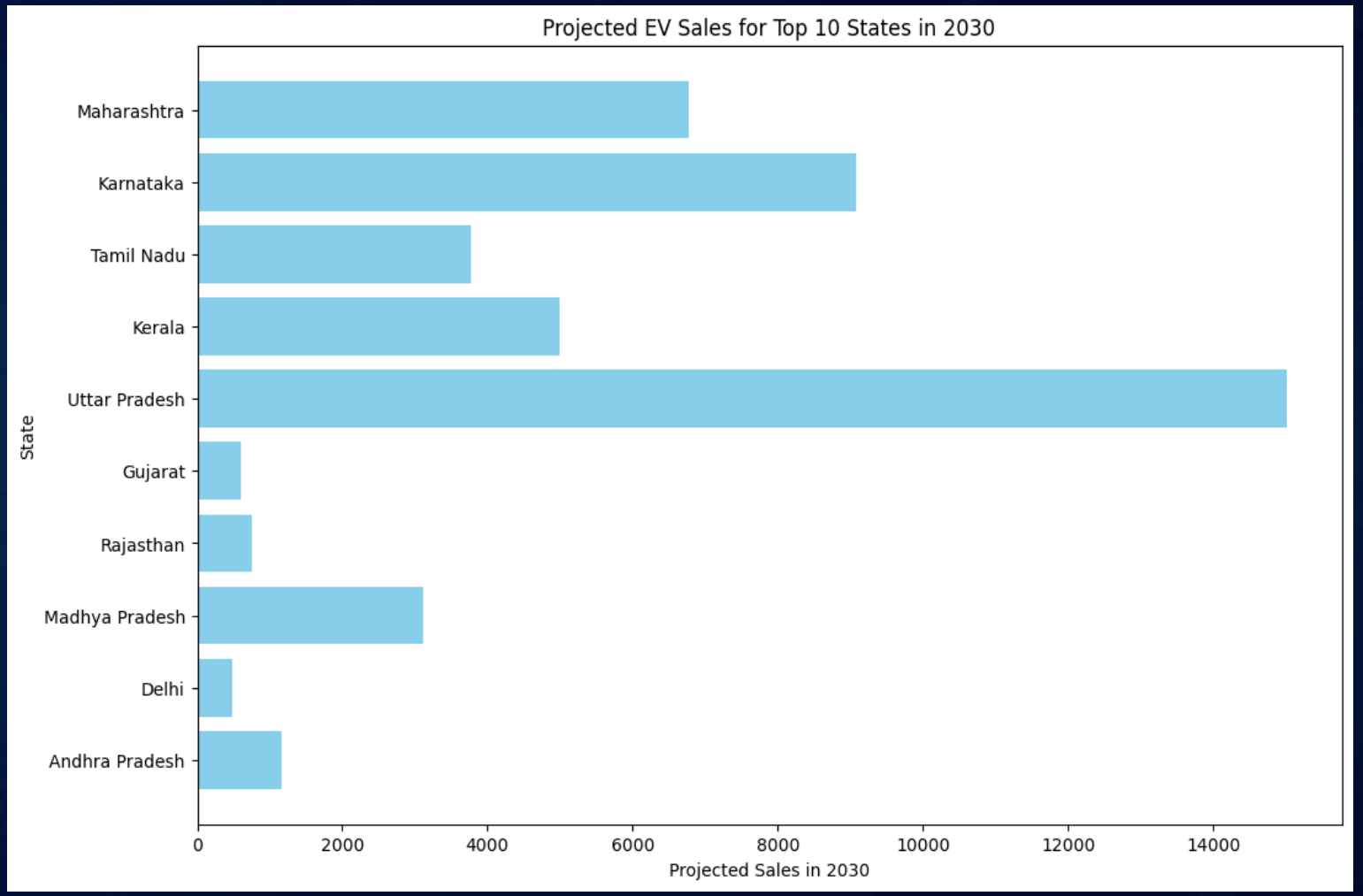
8. What are the peak and low season months for EV sales based on the data from 2022 to 2024?



9. What is the projected number of EV sales (including 2-wheelers and 4- wheelers) for the top 10 states by penetration rate in 2030, based on the compounded annual growth rate (CAGR) from previous years?

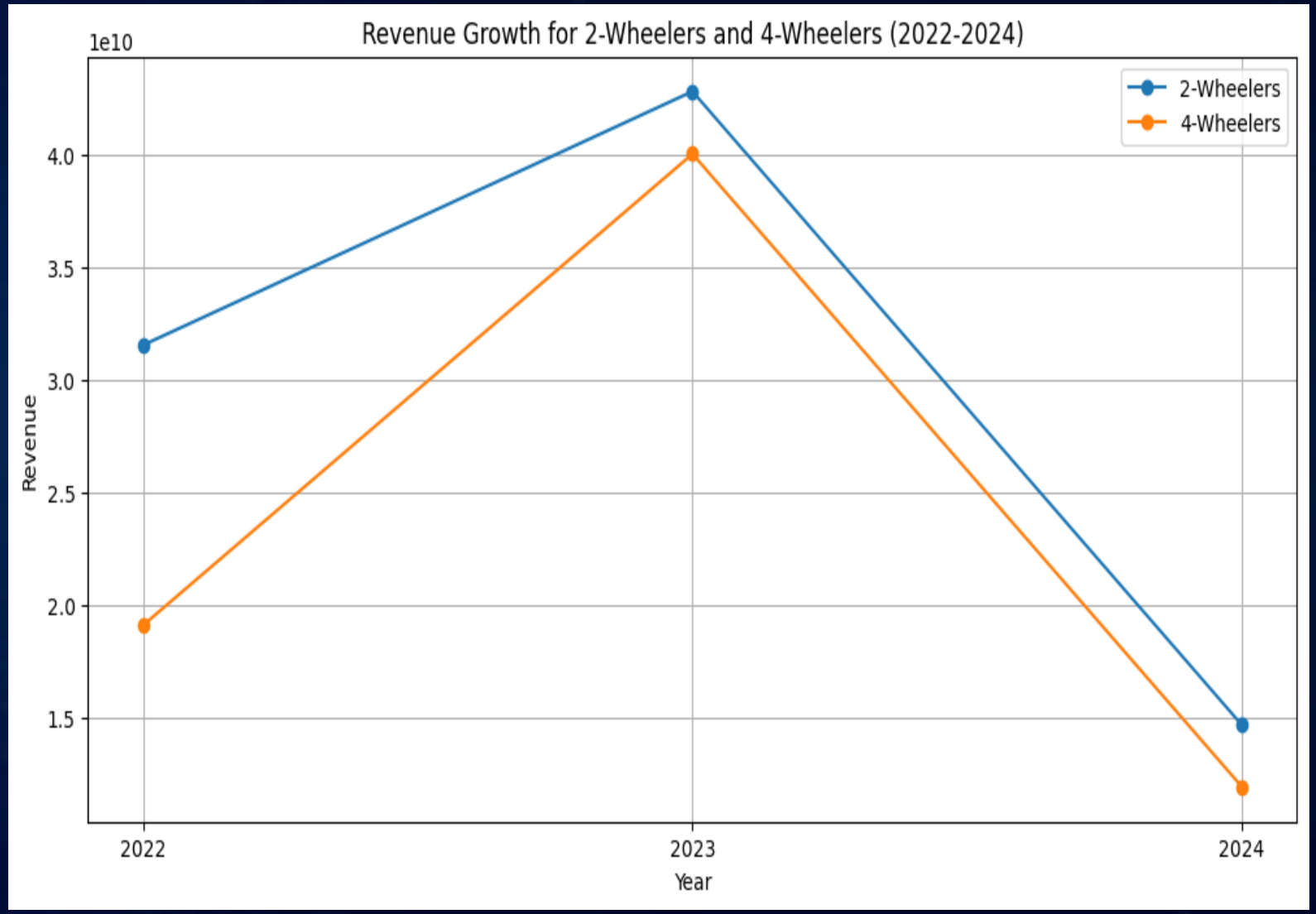
Projected EV Sales for Top 10 States in 2030:

	state	projected_sales_2030
20	Maharashtra	6765.793332
16	Karnataka	9078.581639
30	Tamil Nadu	3763.778788
17	Kerala	4984.452385
32	Uttar Pradesh	15017.475680
11	Gujarat	598.585688
28	Rajasthan	761.088216
19	Madhya Pradesh	3107.918967
9	Delhi	476.969559
2	Andhra Pradesh	1155.885478



10. Estimate the revenue growth rate of 4-wheeler and 2-wheelers EVs in India for 2022 vs 2024 and 2023 vs 2024, assuming an average unit price. For 2-wheeler 50000/- and for 4-wheeler 500000/-

Growth Rate for 2-Wheelers from 2022 to 2024: -53.58649321016 02%
Growth Rate for 2-Wheelers from 2023 to 2024: -65.81481170258952%
Growth Rate for 4-Wheelers from 2022 to 2024: -37.6630861933455 56%
Growth Rate for 4-Wheelers from 2023 to 2024: -70.30241759339%



1. What are the primary reasons for customers choosing 4-wheeler EVs in 2023 and 2024 (cost savings, environmental concerns, government incentives)?

There are several reasons why choose 4-wheeler EVs in 2023 and 2024:

· Cost savings: Although EVs may have a higher upfront cost compared to traditional gasoline-powered vehicles, they can save owners money in the long run due to lower operating costs, such as lower fuel and maintenance costs.

· Environmentally friendly: EVs produce zero emissions, which helps reduce air pollution and greenhouse gas emissions. This makes EVs an attractive option for those who are environmentally conscious and want to reduce their carbon footprint.

· Government incentives: The Indian government offers several incentives for EV purchases through its Faster Adoption and Manufacturing of Hybrid & Electric vehicles (FAME) scheme. These incentives can make EVs more affordable and accessible to a wider audience.

· Convenient charging: With the growth of EV charging infrastructure in India, it is becoming increasingly convenient for EV owners to recharge their vehicles. Fast charging and wireless charging technologies are also making it easier for EV owners to charge their vehicles quickly and conveniently.

· Improved driving experience: Many EV owners find that driving an EV provides a smooth, quiet, and enjoyable driving experience. In addition, EVs offer instant torque, which makes for a quick and responsive driving experience.

2. How do government incentives and subsidies impact the adoption rates of 2-wheelers and 4-wheelers? Which states in India provided most subsidies?

Impact of Government Incentives and Subsidies:

- **Cost Reduction**:
  - **Subsidies**: Direct financial incentives reduce the purchase price of EVs. For example, subsidies on 2-wheelers can bring down the cost by a substantial margin, making them competitive with ICE vehicles.
  - **Tax Benefits**: Reduction or exemption from taxes such as GST, road tax, and registration fees further lowers the cost of ownership.
- **Infrastructure Development**:
  - **Charging Infrastructure**: Government grants and subsidies for setting up charging stations increase the accessibility and convenience of owning an EV.
  - **Battery Swapping Stations**: Incentives for battery swapping infrastructure particularly benefit 2-wheelers and 3-wheelers, addressing range anxiety and reducing downtime.
- **Operational Cost Savings**:
  - **Lower Running Costs**: Subsidized EVs have lower running costs due to cheaper electricity compared to petrol or diesel. This is a significant factor for high-usage vehicles like 2-wheelers used for commuting.
- **Innovation and Local Manufacturing**:
  - **R&D Support**: Subsidies and incentives for research and development encourage innovation in EV technology, leading to better and more affordable models.
  - **Make in India**: Incentives for local manufacturing reduce dependency on imports, further bringing down the cost of EVs and spurring job creation.

States in India Providing the Most Subsidies

Several Indian states have been proactive in offering subsidies and incentives to boost EV adoption. The most notable ones include:

- **Delhi**:
  - **Subsidies**: Offers significant purchase subsidies for both 2-wheelers and 4-wheelers.
  - **Tax Exemptions**: Waives road tax and registration fees for EVs.
  - **Additional Benefits**: Provides incentives for scrapping old ICE vehicles when purchasing new EVs.
- **Maharashtra**:
  - **Subsidies**: Offers attractive subsidies on the purchase of 2-wheelers and 4-wheelers.
  - **Infrastructure Support**: Provides subsidies for setting up charging stations.
  - **Policy Framework**: Has a comprehensive EV policy that supports both consumers and manufacturers.
- **Gujarat**:
  - **Subsidies**: Provides substantial subsidies for electric 2-wheelers and 4-wheelers.
  - **Tax Incentives**: Offers exemptions on road tax and registration fees.
  - **Manufacturing Support**: Encourages local manufacturing through various incentives and benefits under the state's EV policy.
- **Karnataka**:
  - **Subsidies**: Supports the purchase of 2-wheelers and 4-wheelers with subsidies.
  - **Infrastructure Development**: Promotes the establishment of charging stations and battery swapping facilities.
  - **Policy Incentives**: Has specific policies aimed at increasing EV adoption and supporting local manufacturing.

Conclusion

Government incentives and subsidies are pivotal in driving the adoption of EVs by reducing the overall cost of ownership, enhancing infrastructure, and supporting local manufacturing. States like Delhi, Maharashtra, Gujarat, and Karnataka are leading in providing these benefits, thereby encouraging more consumers to switch to electric 2-wheelers and 4-wheelers.

3.How does the availability of charging stations infrastructure correlate with the EV sales and penetration rates in the top 5 states?

Reasons Why Charging Stations are Correlated to EV Sales

1. Increased Consumer Confidence

Potential EV buyers are more likely to make the switch when they perceive charging as a convenient and reliable aspect of their daily lives. The widespread availability of charging stations alleviates range anxiety, making consumers feel confident that they can charge their vehicle easily, whether at home, work, or on the go. This assurance plays a crucial role in the decision to purchase an EV.

2. Enhanced Convenience

The convenience of charging while shopping, working, or even during a brief stop at a cafe mitigates the perceived inconvenience associated with EVs. As charging infrastructure becomes more integrated into everyday locations, it seamlessly fits into consumers' routines, reducing the disruption compared to traditional refueling methods. This convenience factor significantly boosts the appeal of EVs.

3. Government Policies and Incentives

Government policies and incentives further amplify the impact of charging infrastructure on EV adoption. Financial incentives for businesses to install charging stations, such as grants and subsidies, encourage the expansion of the charging network. Additionally, tax credits for individual consumers purchasing electric vehicles serve as powerful catalysts. These incentives lower the initial cost barriers and promote a more rapid adoption of EVs.

4. Alignment of Economic and Environmental Benefits

By aligning economic benefits with environmental consciousness, policymakers create a favorable environment for both the supply and demand sides of the electric vehicle market. Subsidies for EV manufacturers and buyers, coupled with investments in renewable energy sources for charging stations, not only drive economic growth but also promote sustainable practices. This dual benefit supports a thriving EV ecosystem.

5. Future-Proofing the Automotive Industry

As charging infrastructure continues to evolve, its role in shaping the electric vehicle industry will remain indispensable, steering the world towards a cleaner and more sustainable automotive future. Innovations such as ultra-fast charging, wireless charging, and smart grid integration are set to make EVs even more attractive. Continuous improvements in charging technology and infrastructure will ensure that the transition to electric mobility is smooth and future-proof.

4. Who should be the brand ambassador if AtliQ Motors launches their EV/Hybrid vehicles in India and why?

1. **Akshay Kumar**

- **Profile**: Bollywood actor and producer known for his roles in socially relevant films.
- **Reason**: Akshay Kumar has been associated with several social causes and has a reputation for supporting environmentally friendly initiatives. His involvement in promoting EVs can lend authenticity and a strong voice to the campaign. He has also been seen advocating for cleaner technology in various public forums.

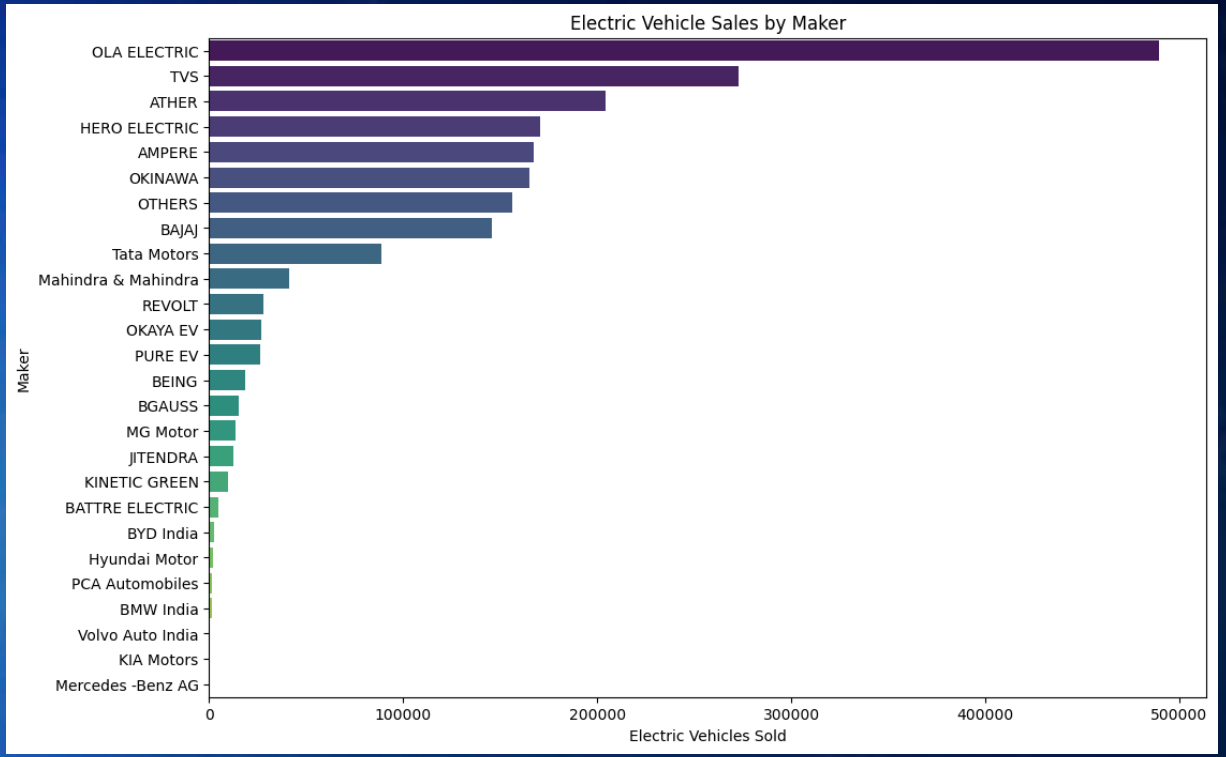
2.Ratan Tata

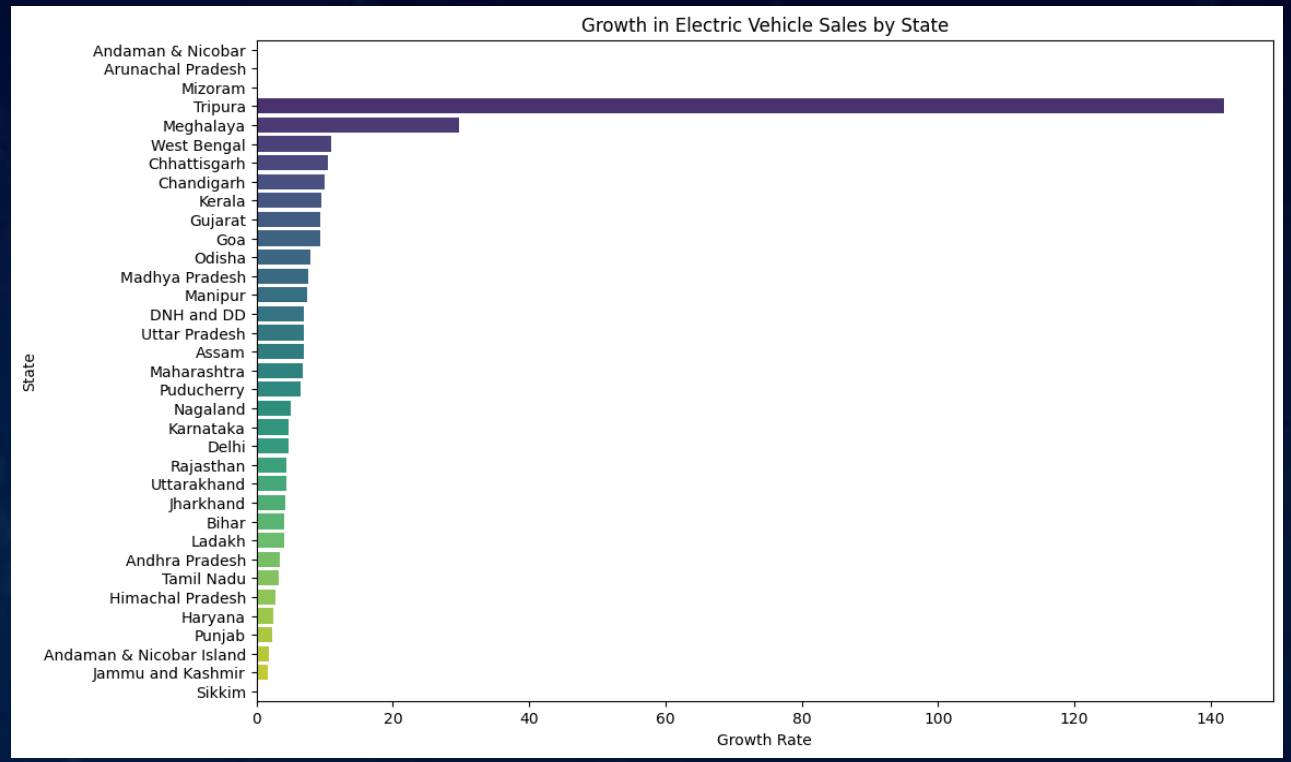
•**Profile**: Former chairman of Tata Sons and an influential business leader in India.
•**Reason**: Ratan Tata has a keen interest in promoting sustainable technology and has invested in various EV startups, including an Indian EV company, Tork Motors. His endorsement would carry significant weight, given his experience and reputation in the automotive industry.

Conclusion:

Choosing a brand ambassador like Akshay Kumar, Ratan Tata or Sundar Pichai would not only bring visibility to AtliQ Motors' EV/Hybrid launch in India but also ensure that the campaign is backed by individuals with genuine knowledge and advocacy for electric vehicles and sustainability. Their involvement would add credibility and resonate well with the target audience, driving both awareness and adoption of EVs.

5. Which state of India is ideal to start the manufacturing unit? (Based on subsidies provided, ease of doing business, stability in governance etc.)





- The top state with highest EV's sold is Maharastra:
- The top state with highest growth in EV sales is Tripura
- In case of States:
- Maharastra,
- Karnataka,
- Tamil Nadu
- Gujarat
- Rajastan
- Tripura

6. Your top 3 recommendations for AtliQ Motors.

- Recommendation 1: Focus on High-Growth States
- **Target States:** Maharashtra, Karnataka, Tamil Nadu
- **Rationale:** Highest EV sales volumes, supportive policies, and infrastructure.

- Recommendation 2: Collaborate with Local Manufacturers
- **Action Plan:** Partner with local EV manufacturers and suppliers.
- **Rationale:** Enhance supply chain efficiency and reduce production costs.

- Recommendation 3: Invest in Marketing Campaigns
- **Action Plan:** Launch targeted campaigns highlighting EV benefits.
- **Rationale:** Increase consumer awareness and drive adoption rates.

- Objective:
- Ensure successful market entry and growth in India